VDOT We Keep Virginia Moving

The Bonded Weigh Program

Weighperson Training Manual

April 2004 Edition

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I. INTRODUCTION

This manual is a practical training guide for Bonded Weighpersons, as well as a guidance document for the Virginia Department of Transportation's (VDOT) Bonded Weigh Program. The information included in this manual is compatible with the 2002 Road and Bridge Specifications and the February 2001 Materials Division Manual of Instructions. For current specifications, consult the current or applicable VDOT Road and Bridge Specifications and Manual of Instructions.

This manual does not address all situations that a weighperson may encounter in the routine performance of weighing operations. The District Materials Engineer, District Weigh Monitor and staff are prepared to assist the weighperson. The Central Office Materials Division is also available to assist the Districts.

II. GOALS & OBJECTIVES FOR THE BONDED WEIGH PROGRAM

VDOT specifies the program objective in Section 109.01 of the Road and Bridge Specifications:

> Section 109.01
> "The methods of measurement and computations to be used to determine quantities of material furnished and work performed will be those generally recognized as conforming to good engineering practice."
>
> Section 109.01 (a)
> "Materials that are measured or proportioned by weight shall be weighed on accurate scales."
>
> "When material is paid for on a tonnage basis, personnel performing the weighing shall be certified by the Engineer and shall be bonded to the Commonwealth of Virginia in the duties of the weighperson required herein."

A complete excerpt of Section 109.01 (a) Measurement by Weight is included as Appendix 1. A complete excerpt of corresponding sections of the Manual of Instructions, Sections 107 Scale Program, 108 Bonded Weighperson Program, and 109 Legal Load Determination, are included as Appendix 2. Examples of pertinent forms are in Appendix 3. In Appendix 4, there are maximum weight determination and limitation charts, truck identification checklists and an example of a legal load determination form. Appendix 5 defines the terms to clarify the specifications of this program.

III. DESCRIPTION OF WEIGHPERSON EVALUATION

Following are listed particular items that the District Materials Engineer or representative will review during the course of the examination of the weighperson. This list is not all inclusive of the weighperson's duties.

1. The weighperson's ability to properly perform weighing operations is demonstrated by the following:
    a. Must zero scales and maintain the scale platform in a clean condition during the weekly taring and during shipment to State projects or purchase orders.
    b. Must maintain a current seal of the Office of Product and Industry Standards, Virginia Department of Agriculture and Consumer Services (OPIS / VDACS) while shipping to the state.
    c. Must provide for the routine testing of scales by an approved scale service company at six and no more than seven months after the OPIS inspection, **twice annually**.
    d. Weighperson assists Department's representative in performing checks of trucks and hopper scales.

2. Demonstrates ability to tare trucks and prepare and post tare weights worksheet
    a. The truck tare weight is the weight of the empty truck with full tank(s) of fuel and the driver seated in the truck.
    b. The tare weight is recorded to the nearest 20 pounds.
    c. For routine taring, the Weighperson shall tare each truck at least once a week during periods of materials shipment to State work.
    d. At the option of the Producer, a new tare may be determined for each load. The requirement for full tank(s) of fuel will be waived and the most recent tare is used to determine net pay quantity, providing the vehicle has been certified.
    e. For trucks tared weekly, this tare is compared to the initial legal load determination preformed by the Department's representative. The larger of the 2 tare weights is used to determine net pay quantity, until the Department's representative rechecks the truck. Another tare weight should be performed when the difference in weight is more than ±200 pounds.

3. Demonstrates the ability to prepare and maintain records on tare sheets, Form TL-104.
    a. Completes tare sheets weekly and includes company name, plant location, date trucks tared, I.D. of each truck used, maximum legal gross weight/maximum legal net weight, Department determined tare weight, actual tare and tare weight used, and signature of Weighperson taring trucks.
    b. Tare weight data shall be accessible to the Weighperson during weighing operations.
    c. Tare sheets shall be accurate, concise and legible.
    d. Paper or electronic documents shall be reserved on file for a minimum of 1 year from the date of entry.

4. Demonstrates and/or explains the system the Producer uses to identify lots and maintains accruing data totals.

5. A copy of the Surety Bond shall be posted for compliance with Department specifications.

6. Demonstrates an understanding of the Daily Summary Sheet, Form TL-102A.

a. Explains the logistics of delivery of TL-102A's to projects, state personnel or state personnel in case of purchase orders.
b. Furnishes a summary to each order and/or contract. Issues a summary for each lot of production shipped to state projects and purchase orders.
c. Multiple lots may be reported on the TL-102A at the discretion of the District Materials Engineer.
d. It shall be accurate, concise and verified with a signature of the responsible party.
e. Delivers them to the person collecting the weigh tickets at the project or work area by the end of the next working day, or according to the agreement with a Department's representative receiving the material.

7. Knows what to do in case of a malfunction.

8. Knows whom to contact (Department representative) in case of problems.

9. Is knowledgeable of how spot-checks will be made. (District Weigh Monitor should explain the spot-checking system to the Weighperson.)

10. Demonstrates ability to make temporary legal load determinations at the discretion of the Bonded Weigh representative.
    a. Following the initial round of legal load determinations of vehicles by the Department's Bonded Weigh representative, and at the option of the Producer/Contractor, the Bonded Weighperson can make further legal load determinations. If this option is necessary, contact the Department's Bonded Weigh representative for approval before issuing a temporary truck certification. If no contact can be made, a temporary certification cannot be issued to haul any material to a state contract. With the approval from the Department, up to a 10 day certification can be issued until a Bonded Weigh monitor can verify the vehicle.
    b. Determines that fuel tanks are full and the truck bed is clean.
    c. Measures extreme axle spacing.
    d. Determines gross and net weights.

IV. LEGAL LOAD DETERMINATION

The following sections briefly summarize Department requirements. The entire section from the Manual of Instructions is included in Appendix 4. The Road and Bridge Specifications provide for the uniform administration of legal load limits on Department contracts. The District Materials Engineers, through the Weigh Monitors, are responsible for determining/verifying the legal load limits for trucks hauling materials to the state. The legal load determination will expire 4 years after the date of the initial legal load determination was established.

Producers/Contractors shall give the District Materials Section at least 48 hours prior notice for requests that the Department schedule subsequent legal load determinations after the initial round of vehicle checks. Following the initial round of vehicle checks by the Department, and at

the option of the Producer/Contractor, legal load determinations may be made by the Bonded Weighperson; whereupon, the truck(s) may be used for up to 10 days. The Department's representative shall verify or adjust and publish weight limits thus determined as soon as practicable. An example of the legal load determination and calculation forms is in Appendix 4.

V. INSTRUCTIONS FOR THE USE OF OVERLOAD PERMITS

Recent Legislation has amended the Code of Virginia relative to overload permits for trucking.[1] The *Summary as passed*: **Truck weights; overweight permits; road tax; penalties**. Provides for an increase of the maximum weight of vehicles operating under the "bought tolerances" from 80,000 pounds to 84,000 pounds. The bill also allows the DMV Commissioner to authorize agencies other than DMV to issue overweight permits for trucks used to haul "excavated material," and replaces the present 19.5 cents-per-gallon road use tax with a flat fee of $100 per qualified vehicle. There are also editorial changes.

Note that the amended Code now allows gross weights up to 84,000 pounds. Unless the Federal Code has also been amended, the State now allows heavier weights on State roads than are allowed on Interstate highways. Truck owners that have been issued the extension of weight limits permit shall display the authorized percentage of extension decal along with the adjusted Legal Gross and adjusted Legal Net weights to reflect the percentage of extension at the time the Legal Load Determination were performed by the Bonded Weigh Monitor. The **Plant Weigh Monitor** shall assure the vehicles extension of weights permit remains current during operations throughout the year.

Trucks in the Bristol District that request to haul over weight loads in accordance with the requirements referenced in Appendix 4 for Legal Load Determination to haul to VDOT projects.
Coal Counties in the Bristol District are as follows: Buchanan, Dickenson, Lee, Russell, Scott, Tazewell and Wise.

VI. ALTERNATIVE WEIGHT DETERMINATIONS

NOTE: This information pertains to **vessels** only and is an alternative calculation used instead of scales. This section is for **information only.**

A. Vessel Displacement[2]

Each vessel will be accurately measured and will be fitted with gauges graduated in tenths of a foot. The gauges will be located on each corner of the vessel, near the lower end of the rake, with two additional gauges amidships. Fore and after displacement due

[1] Virginia Acts of Assembly 46.2-1128 (HB 1244 2002 Session) Truck weights; overweight permits; road tax; penalties.
[2] "Vessel Displacement," United States Army Corps of Engineers, Navigation. Section 01800:5.7.1.

to load will not differ more than 10 percent from their mean for the determination of tonnage, except in unavoidable cases. All gauge readings will be made in still water.

At the option of the Contracting Officer, tonnage determinations may be made at the loading point by using change in gauge readings from light marks to load marks, or at the unloading point by using change in gauge readings from load marks to light marks. All vessels shall be pumped dry (within limits of the pump suction) before each gauging, and limbers shall be kept open so that any water in the vessel will flow freely to the pump suction.

The weight of the water displaced at the point of gauging will be based on approved hydrometer readings of the water assuming that water weighing 62.4 pounds per cubic foot has a specific gravity of 0.9975. Each barge shall be calibrated a minimum of one time, and additionally as directed by the Engineer, by measuring the weight of all stone placed on the barge by the producers specified below in the paragraph, "Certified Weight," and comparing the sum of those certified weights with the weight determined by the barge displacement method. Adjust the gauges on the barge as necessary to address any discrepancy in the certified weights and the weights computed by displacement measurements.

B. Certified Weight

If shipments are made by railroad from the quarry to tidewater and then transferred to barges, certified railroad weights will be accepted in place of weights determined by barge displacements. If shipments are made by truck from the quarry, each truckload of stone shall be weighed on scales, which have been carefully verified by a properly accredited official. One original report and duplicate copy of weight of each carload or truckload, certified by the weighperson and prepared in ink or indelible pencil, shall be furnished to the Engineer. The report shall show gross, tare, and net weight of each carloads or truckload.

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Appendix 1
VDOT Road and Bridge Specifications
Excerpted Section 109.01 (a) Measurement by Weight

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VDOT Road and Bridge Specifications
Excerpted Section 109.01 (a) Measurement by Weight

SECTION 109—MEASUREMENT AND PAYMENT

109.01—Measurement of Quantities

Work specified in the Contract will be measured by the Engineer according to U.S. Standard Measure. The methods of measurement and computations to be used to determine quantities of material furnished and work performed will be those generally recognized as conforming to good engineering practice.

Longitudinal measurements for surface computations will be made horizontally, and transverse measurements will be the surface measure shown on the plans or ordered in writing by the Engineer. Individual fixture areas of 9 square feet or less will not be deducted from surface areas measured for payment.

Structures will be measured according to neat lines shown on the plans.

Items that are measured by the linear foot will be measured parallel to the base or foundation upon which they are placed.

Allowance will not be made for surfaces placed over a greater area than shown on the plans or for any material moved from outside the area of the cross section and lines shown on the plans.

When standard manufactured items are specified and are identified by weights or dimensions, such identification will be considered nominal. Unless more stringently controlled by tolerances in cited specifications, manufacturing tolerances established by the industries involved will be accepted.

(a) **Measurement by Weight**: Materials that are measured or proportioned by weight shall be weighed on accurate scales. When material is paid for on a tonnage basis, personnel performing the weighing shall be certified by the Engineer and shall be bonded to the Commonwealth of Virginia in the amount of $10,000 for the faithful observance and performance of the duties of the weighperson required herein. The bond shall be executed on a form having the exact wording as the Weighpersons Surety Bond Form furnished by the Department and shall be submitted to the Department prior to the furnishing of the tonnage material. No payment will be made for materials delivered in excess of the legal load limits established for each truck.

The Contractor shall have the weighperson perform the following:

1. Furnish a weekly tare weight of each truck used and keep a record of them for 12 months.

2. Furnish a signed weigh ticket for each load that shows the date, truck number, load number, plant name, size and type of material, project, schedule or purchase order number, and the weights specified herein.

3. Maintain sufficient documentation so that the accumulative tonnage and distribution of each lot of material, by contract, can be readily identified.

4. Submit by the end of the next working day a summary of the number of loads and total weights for each type of material by contract.

Trucks used to haul material being paid for by weight shall display the truck uniform identification number and legal gross and legal net weight limits. These markings shall be no less than 2 inches high and permanently stenciled on each side of the truck bed

with contrasting color and located as to be clearly visible when the vehicle is positioned on the scales and observed from normal position of the weighperson at the scale house.

Trucks used to haul material shall be equipped with a cover suitable to protect the material and to protect the traveling public.

The truck tare to be used in the weighing operation shall be the weight of the empty truck determined with full tank(s) of fuel and the operator seated in the cab. The tare weight of trucks shall be recorded to the nearest 20 pounds. At the option of the Contractor, a new tare may be determined for each load. When a new tare is obtained for each load, the requirement for full tank(s) of fuel will be waived.

Net rail shipment weights may be used for pay quantities when evidenced by railroad bills of lading. However, such weights will not be accepted for pay quantities of materials that subsequently pass through a stationary mixing plant.

Scales shall conform to the requirements for accuracy and sensitivity as set forth by the *National Institute of Standards and Technology Handbook No. 44 for Specification Tolerances and Requirements for Commercial and Weighing Devices.* Scales used in weighing of materials paid for on a tonnage basis shall be approved and sealed in accordance with the polices of the Office of Product and Industry Standards / Virginia Department of Agriculture and Consumer Services or an approved certified scale company twice annually or upon being moved.

Copies of scale test reports shall be maintained on file at the scale location for at least 18 months, and copies of all scale service representative test reports shall be forwarded to the Department.

The quantity of materials paid for on a tonnage basis shall be determined on scales equipped with an automatic printer. Truck scale printers shall print the net weight and either the gross or tare weight of each load. Hopper scale printers shall conform to the requirements of NIST Handbook No. 44 and shall print the net weight of each load. The weigh ticket shall also show the legal gross weight for material weighed on truck scales and the legal net weight for material weighed on hopper scales.

If the automatic printer becomes inoperative, the weighing operation may continue for 48 hours provided satisfactory visual verification of weights can be made. The written permission of the Engineer will be required for the operation of scales after 48 hours.

If significant discrepancies are discovered in the printed weight, the ultimate weight for payment will be calculated on volume measurements of the materials in place and unit weights determined by the Engineer or by other methods deemed appropriate to protect the interests of the State

(b) **Measurement by Cubic Yard**: Material that is measured by the cubic yard, loose measurement or vehicular measurement, shall be hauled in approved vehicles and measured therein at the point of delivery. Material measured in vehicles, except streambed gravel, will be allowed at the rate of 2/3 the volume of the vehicle. The full volume of the vehicle will be allowed for streambed gravel. Such vehicles may be of any size or type acceptable to the Engineer provided the body is of such shape that the actual contents can be readily and accurately determined. Unless all approved vehicles are of uniform capacity, each vehicle shall bear a plainly legible identification mark indicating the specific approved capacity. Each vehicle shall be loaded to at least its water level capacity.

When approved by the Engineer in writing, material specified to be measured by the cubic yard may be weighed and such weights converted to cubic yards for payment purposes. Factors for conversion from weight to volume measurement will be determined by the Engineer and shall be agreed to by the Contractor before they are used.

(c) **Measurement by Lump Sum**: When used as an item of payment, the term *lump sum* will mean full payment for completion of work described in the Contract. When a complete structure or structural unit (in effect, lump sum work) is specified as the unit of measurement, the unit will be construed to include necessary fittings and accessories. The quantities may be shown on the plans for items for which lump sum is the method of measurement. If shown, the quantities are approximate and are shown for estimating purposes only. Items that are to be measured as complete units will be counted by the Inspector in the presence of a representative of the Contractor.

(d) **Specific Items:**

1. **Concrete:** Concrete will be measured and computed by dividing the work into simple geometrical figures and adding their volumes.

2. **Excavation, embankment, and borrow**: In computing volumes of excavation, embankment, and borrow, methods having general acceptance in the engineering profession will be used. When the measurement is based on the cross-sectional area, the average end area method will be used.

3. **Asphalt:** Asphalt will be measured by the gallon, volumetric measurement, based on a temperature of 60 degrees F using the following correction factors:

    a. 0.00035 per degree F for petroleum oils having a specific gravity 60/60 degrees F above 0.966

    b. 0.00040 per degree F for petroleum oils having a specific gravity 60/60 degrees F between 0.850 and 0.966

    c. 0.00025 per degree F for emulsified asphalt

Unless volume correction tables are available, the following formula shall be used in computing the volume of asphalt at temperatures other than 60 degrees F:

$V^1 = V/K(T - 60) + 1$

Where:
V = volume of asphalt to be corrected;
V^1 = volume of asphalt at 60 degrees F;
K = correction factor (coefficient of expansion); and
T = temperature in degrees F of asphalt to be corrected.

When asphalt is delivered by weight, the volume at 60 degrees F will be determined by dividing the net weight by the weight per gallon at 60 degrees F.

When specified in the Contract, asphalt will be measured by weight. Net certified scale weights, or weights based on certified volumes in the case of rail shipments, will be used as a basis of measurement, subject to correction when asphalt has been lost from the car or the distributor, disposed of, or otherwise not incorporated in the work.

When asphalt is shipped by truck or transport, net certified weights or volumes subjected to correction for loss or foaming may be used to compute quantities.

Only the quantity of asphalt actually placed in the work and accepted will be considered in determining the amount due the Contractor.

4. **Timber**: Timber will be measured in units of 1,000 foot-board-measure actually incorporated in the structure. Measurement will be based on nominal widths and thicknesses and the extreme length of each piece.

5. **Equipment rental:** Equipment rental will be measured by time in hours of actual working time and necessary traveling time of the equipment within the limits of the project or source of supply and the project except when another method of measurement is specified.

Appendix 2
VDOT Materials Division
Manual of Instructions
Excerpted Sections 107, 108, and 109

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VDOT Materials Division
Manual of Instructions
Excerpted Sections 107, 108, and 109

107 SCALE PROGRAM

Truck and hopper scales used in weighing material for Department work are to be certified and sealed, as outlined in the Road and Bridge Specifications. The District Administrator and District Materials Engineer, in whose area the plant(s) is located, will be responsible for initiating these instructions.

Sec. 107.01 Certification of Batch Test Weights - DELETED

Sec. 107.02 Certification of Scales

(a) The following instructions will cover all situations requiring the sealing of scales, but will not be limited necessarily to the following situations:

(1) When plants and scales are initially set up.

(2) When scales are moved from one location to another.

(3) When there has been more than seven months since the last inspection by the Office of Product and Industry Standards (OPIS) / Virginia Department of Agriculture and Consumer Services (VDACS) or an approved private scale service company.

(4) When scales are suspected or determined to be out of tolerance or adjustment at anytime during operation, regardless of when it was previously inspected.

(b) The following procedures should be used in obtaining compliance with scale certification requirements:

(1) The Scale Owner, whether it is the Material Producer, Supplier or Contractor, shall determine the date on which the scale will be needed. Should inspection and sealing of the scales be required under any of the four conditions noted above, then the Scale Owner shall contact a scale service company licensed by (OPIS) / (VDACS). The scales are required to be inspected twice per year. One test to be performed by OPIS / VDACS, and no less than six to no more than seven months after their inspection, a private scale company shall be requested by the **Scale Owner** to perform a scale inspection to assure the scales are in compliance with specifications.

(2) The service company will complete a service and test report similar to the report used by OPIS / VDACS to meet the requirements set forth by the Commonwealth of Virginia.

(3) The Scale Technician Service and Test Report, when properly filled out by the scale technician, shall be left with the scale operator and copies shall be distributed to the District Materials Engineer and Office of Product and Industry Standards. The report must be signed by the service technician inspecting the scale, and must indicate whether the scale meets all of the requirements of the current edition of the National Institute of Standards and Technology, Handbook 44. The scale operator's copy shall be posted in the scale house where it can be viewed to validate the scales.

(4) Scales shall not be placed in, or returned to, service by a scale technician, unless it meets all requirements of National Institute of Standards and Technology, Handbook 44, outlined in Item 3 above (also see Item 6 below). When scales have been "tagged" rejected or condemned by Weights and Measures, only they or a technician from a service company may remove the tag and return scales to service. OPIS Inspectors are the only ones with the authority to remove an "Approval" sticker.

(5) When testing scales, technicians must use the amount of test weights required by Table 4, Minimum Test Weights and Test Loads in NIST HB-44. Test shall be conducted as required by the applicable Examination Procedure Outline in NIST HB-112.

Weigh monitors should review scale service reports and/or occasionally observe a 6 month check by the service company to assure themselves that 12.5% of scale capacity is being tested with known test weights. The scale sections should be checked using the combined weight of the known weights and the weight of the transport vehicle to order to attain a weight of 44,000 lbs. or greater.

(6) If OPIS has not tested and approved the scales prior to the date of use or within seven months of the last OPIS inspection date, ignore the remainder of Items 6 and 7, and proceed to Item 8 for further instructions.

If OPIS has not tested and approved the scales prior to the scheduled inspection date, or the anticipated date of use of new or newly relocated scales, the Materials Division may issue a temporary approval for use of the scales. For temporary scale approval to be issued, the following actions are to occur:

a. The scale owner is to request the Materials Division for an extension of time.

b. The scale owner is to provide a Scale Technician Service and Test Report, indicating that the scale meets the requirements of NIST HB-44. The inspection should have been performed within the last thirty (30) days from the date requested.

c. The Materials Division will notify the scale owner for temporary approval upon verification of the scale Test Report.

The scale must be inspected and sealed by Weights and Measures in accordance with the inspection schedule established by OPIS and the Materials Division.

(7) If the report indicates that the scale has been "condemned" for not meeting the requirements of NIST HB-44, the scale is restricted from all commercial use until brought into compliance by a service company. In some extreme cases, OPIS may restrict the scale from being used until approved.

(8) OPIS will not give advanced notice as to when they will check the scales. If a scale service technician is present at the time of inspection, the inspector may allow time to correct minor deficiencies. The Weights and Measures inspector will not wait while major repairs are made and the amount of time allowed for minor repairs is at the discretion of the Weights and Measures inspector. The scale Owner will be responsible to see that the Materials Division receives a copy of the Scale Inspection Report issued by OPIS.

(9) Copies of all correspondence and reports outlined in this section will be sent to, or retained by, the Bonded Weigh Program Administrator, Administrative Services Officer, and District Materials Engineer.

Sec. 107.03 Deleted

Sec. 107.04 General Scale Requirements and Check Points

The following is some helpful information regarding scale accuracy:

(a) Single Draft Weighing

The length of a vehicle scale must be adequate to accommodate in its entirety the longest vehicle or vehicle combination. The total weight of a vehicle or combination is not to be determined by adding together the results obtained by separately and not simultaneously weighing each end of such vehicle or individual elements of such couple combination. The weight of a coupled combination may be determined by uncoupling the various elements (tractor, trailer), weighing each unit separately as a single draft, and adding together the results.

(b) Scale Platform

The scale platform should be of adequate strength. The surface should be reasonably smooth and in surface alignment with the pit coping. The opening between platform and coping should be approximately 25 mm, to prevent lodging of foreign matter between platform and pit wall. The surface should be kept in good repair, and cleaned when necessary or at least once a day.

(c) Scale Pit

The pit wall, floors, and piers for lever stands should be of good quality concrete. It is imperative that there be periodic cleaning, good pit drainage, and ventilation. Adequate room should be provided so that the inspector or repairman can move about the pit freely. The pit should be deep enough, and access thereto should be such, as to facilitate inspection, cleaning, and maintenance of scale parts.

(d) Elements in Pit

All stands should be set on concrete and securely anchored. All elements should be in alignment and level if so designed, with adequate clearance around live parts. Pivots and bearings of the main and extension levers should be well packed with grease to protect the parts against corrosion. All elements, levers, and structural steel should be painted periodically to minimize rust hazards. The weighbridge should be of steel, adequately strong to prevent deflection.

(e) Indicating Elements

Indicating elements should be rigidly mounted upon firm foundation, independent of the scale house, weighing room, or other similar structure. Adequate clearance must be provided around the indicating elements and the connections. On beam type truck scales, all connections not above the beam stand must be enclosed. Keep weighbeam bars and faceplates in clean and legible condition. Keep automatic elements clean and the dashpot properly filled with oil. See that the poises on the notched weighbeams have pawls that fit the weighbeam notches, and that the spring-loaded weighbeam poises are strong enough to seat the pawl properly in the weighbeam notches. See that the poises on the weighbeam, tare bar, frictional bar, and tare bar on automatic - indicating scales, when they are pushed as far as they will slide in the zero direction of the weighbeam, give a correct (zero) indication. Any loose material used for the purpose of balancing the weighbeam must be secured so that it cannot shift or be knocked off, thus affecting the balance condition of the scale. See that the weighbeam is centered in the fulcrum stand bearing and pivots in loops, and that, when weighbeam is correctly balanced in center of trig loop, the amount equal to two (2) minimum graduations on the weighbeam will hold the weighbeam to the top or bottom of the trig loop. See that the operations of application and removal of unit weights are positive, and that the value of the unit weights in place at any time is clearly indicated on the reading face of the dial.

(f) Correct Balance

Keep the beam scale-weighbeam tip in center of trig loop with all poises at zero. The automatic scale indicator on dial face must be pointing to zero, and the printer dial reading must indicate zero. Zero balance should be checked after each five (5) drafts, or more often if conditions tend to change the weight of the platform.

(g) General

A scale is not to be used for weighing a load totaling more than the capacity indicated on the scale by the manufacturer. Weighperson must have an unobstructed view of the entire scale platform. The indicating elements, the lever system, and the underside of the load receiving elements of a scale shall be adequately protected against wind and weather effects.

(h) Temporary Test on Truck Scales

Acquire correct (zero) balance, place loaded truck on scale platform with rear wheels about .25 m from the end of platform, obtain correct amount, and record. Place truck on other end of

platform in same manner and repeat the operation. Both ends should be within 2 lbs. per 1000 lbs. of gross load of truck.

(i) Temporary Test on Hopper Scales

Acquire correct (zero) balance, making sure that all live parts of the scale are free from a binding condition. Distribute test weights on hopper and record amount indicated. This amount should be within 2 of the minimum graduations on the indicating element. On hopper scales, consideration should be given to suitability of position of the indicating elements, freedom from vibrations, disturbing air currents, and easy accessibility to facilitate daily cleaning of live elements of the scale.

(j) Documentation of Scale Checks

When District Materials personnel make a routine accuracy check of plant truck and hopper scales, the scale inspection should be documented showing the date of the inspection and whether or not the scales appeared to be accurate. If any inaccuracies in scales are evident, the particular details of the discrepancy should also be noted. The procedure for checking a set of truck scales begins with a quick visual inspection of the scales to see that material is not jammed into the areas around the platform or below the scales, which would affect the weights. The readout unit is to be inspected for a proper “zero” and, if digital, that the readout unit has a seal on it to prevent tampering with adjustments inside.

Sec. 107.05 RECORDKEEPING AND SCALE CERTIFICATION DATA SYSTEM

The Department has agreed to the following initiatives, which are intended to assist Weights and Measures in providing their service to suppliers of VDOT. In addition, this system is a means of standardizing records for the Bonded Weigh Program as a whole.

VDOT employees are not to contact representatives of Weights and Measures to request the sealing of scale. Requests must originate with a producer billing procedure. However, the District Weigh Monitors are encouraged to develop a good working relationship with the regional OPIS / VDACS inspectors responsible for his/her respective producer scales.

The Central Office of Weights and Measures should be contacted by our producers to request the scheduling of the scale sealing operation. Each District is to furnish Weights and Measures inspectors in their region a list of **in-state** producers and the status of the service/sealing activity for the scales involved. An example of the "Status Scale Report" is in Appendix No.3, page 33. This report is to be issued at least once each 6 months. An example of a Scale report is in Appendix No.3, page 34.

The total "Certified Scale Status Report" (See Appendix No. 3, page 37) database system should be routinely updated each month and submitted to the Bonded Weigh Program Administrator on a quarterly basis.

SECTION 108 BONDED WEIGHPERSON PROGRAM

The Department requires Contractors and Producers who furnish material by weight to have a certified and bonded Weighperson perform the weighing operations for such material furnished for State work. The District Materials Engineer is responsible for monitoring the Bonded Weighperson program.

Sec. 108.01 Surety Bond

The Weighperson's Surety Bond is to be issued in the name of the Producer's firm, rather than in the name(s) of the Weighperson(s). The Weighperson or other company representative is to see that a copy of the surety bond is submitted to the District Materials Engineer, in whose District the shipping source is located, who will, following review and approval, make appropriate distribution, including a copy for the District Weigh Monitor. In the case where the plant is shipping material across District boundaries, one copy each is to be sent to any other District Materials Engineer(s) into whose District(s) the material is being shipped. The Weighperson will be expected to post his/her copy of the Bond at the work area for (refer to Appendix 3 for verification of the Bond.

Sec. 108.02 Certification of Weighperson

The District Materials Engineer or representative will meet with each proposed Weighperson to verify that the person is bonded, comprehends and has the ability to follow VDOT specifications. The evaluation will be made on the basis of an oral evaluation utilizing the standardized questionnaire provided by the Central Office Materials Division:

(a) The Weighperson Evaluation Form

This form is not intended to be used as a numerically graded examination of the candidate. The District Weigh Monitors will provide each candidate Weighperson Training Manual from which the questions are based. The candidates are to be allotted an appropriate amount of time to review and study this information prior to being orally quizzed on the material. If a candidate has problems recalling the answers to the questions, the District Monitor should prompt or coach the candidate to a reasonable extent. However, if in the opinion of the monitor, the candidate needs more study time to better prepare for the evaluation, an additional amount of time may be allowed before retesting. Upon successful completion of the Weighperson Evaluation, the District Monitor is to recommend the issuing of a Weighperson Certificate by the District Materials Engineer. The signed Weighperson Evaluation Form will serve as a record and documentation of qualifications. The weighperson will be evaluated at the weighing facility at where he/she is employed and evaluated in accordance with the requirement for the equipment he/she will be utilizing in the weighing process.

The form is to be kept on file at the District Office for the period the person is actively engaged in the weighing operations.

We suggest the number of employees certified at an individual facility be limited to one full time weighperson with one or two persons serving as backup. The number may vary according to conditions that may occur in high production facilities. However, the number of active weighpersons should be kept in line with the production demands of a facility.

By limiting the number of employees we certify, we can exercise more control over the Bonded Weigh Program and the amount of monitoring required at each facility. In addition, it is not good practice to encourage the producer to have numerous people certified who are not actively participating in the weighing operation. This effort would tend to protect the producer as well as the State by encouraging reliance on persons who are more thoroughly versed and familiar with the weighing process.

For each certification issued by the District, there is to be a corresponding Weighperson Evaluation Form on file in the District Office for the individual.

The Department reserves the right to withdraw the certification of a Weighperson at any time during the term of the certificate if the performances of duties are not deemed satisfactory. Upon satisfactorily demonstrating that ability, the Weighperson will be certified by the District Materials Engineer. A copy of the Weighperson's certification also shall be posted in the area where weighing operations are performed (refer to Appendix 3 for a sample certification certificate). This certification will remain in effect as long as the Weighperson is actively participating in weighing operations. The Producer is to notify the District Materials Engineer in the event a weighperson is used who has not performed the weighing operation within **120** days.

Following are listed particular items that will be reviewed by the District Materials Engineer or representative during the course of the examination of the Weighperson:

(1) Demonstrates ability to properly perform weighing operations.

(2) Demonstrates ability to prepare and post tare weights.

(3) Demonstrates and /or explains the system the Producer uses to identify lots and keep up with the running totals.

(4) Demonstrates an understanding of the Daily Summary Sheet, Form TL-102A. Explains how the sheets will be delivered to the projects, orders, etc.

(5) Has posted a copy of Surety Bond.

(6) Knows what to do in case of a malfunction.

(7) Knows whom to contact (department representative) case of problems.

(8) Is knowledgeable of how spot-checks will be performed. The proposed District Weigh Monitor spot-checking system should be explained to the Weighperson.

Sec. 108.03 General Guidelines for Weighperson

Following are general guidelines for Weighpersons:

(1) See that trucks are properly tared and in compliance with specifications and instructions.

(2) Maintain tare sheet (See Sections 108.04 and 109).

(3) Assure that all weights are true and correct.

(4) Post Certification, Surety Bond, and a current Virginia Weights and Measures Scale Inspection Report (See Sections 108.01, 108.02 and 107.02).

(5) Maintain accumulative tonnage for lots and (IAS) Q.A. sampling.

(6) Submit Daily Summary Sheet, Form TL-102A, in accordance with specification requirements (See Sections 108.04 and 800).

(7) Provide information to the Department's (IAS) Q.A. Monitor and assist with spot-checks.

(8) Comply with all pertinent specifications and instructions.

Sec. 108.04 Duties of Certified (Bonded) Weighperson

Following are specific duties of Weighpersons performing weighing operations for material shipped to State work:

(a) Scale Operation

(1) Must be zeroed and platform clean before weekly taring, and must remain so while material is hauled to State projects or purchase orders.

(2) Must have current seal of Virginia Department of Agriculture and Consumer Services, Bureau of Weights and Measures. Must also have been tested by a scale service representative within the last 7 months (See Section 107.02).

(3) In case of scale malfunction, notify the District Materials Engineer or his/her representative.

(4) Check truck for identification number and legal gross and legal net weight limits. This data must be permanently stenciled or painted on the truck body and must be clearly visible and legible. (See Section 109).

(5) Virginia Department of Transportation’s trucks use E.D. numbers to verify the vehicle’s identification.

(c) Taring Trucks

(1) The truck tare weight to be used in the weighing operation will be the weight of the empty truck with full tank(s) of fuel and the driver seated in the truck. The tare weight is to be recorded to the nearest 20 pounds

(2) For routine taring, the Weighperson shall tare each truck at least once a week during periods of materials shipment to State work. At the option of the Contractor, a new tare may be determined for each load. In that case, the requirement for full tank(s) of fuel will be waived and the most recent tare is to be used to determine net pay quantity.

For trucks tared weekly, this tare is to be compared to the tare determined by the Department at the time the legal weight was determined (See Section 109). The larger of the 2 tare weights is to be used to determine net pay quantity, until the Department's representative rechecks the truck. A recertification should be requested when the difference exceeds ±200 pounds.

(3) Following the initial round of legal load determinations of vehicles by the Department representative, as outlined in Section 109, and at the option of the Producer/Contractor, the Bonded Weighperson may make further legal load determinations. If this option is necessary, contact the Department's Bonded Weigh representative for approval before issuing a temporary truck certification, if no contact can be made, a temporary certification cannot be issued to haul any material to state contracts. With the approval from the Department, up to a 10 day certification can be issued until a Bonded Weigh monitor can verify the vehicle.

If the Bonded Weighperson makes the legal load determination, he/she is to determine that fuel tanks are full and the truck bed clean, measure extreme axle spacing, and determine legal gross and net weights.

(d) Tare Worksheet

(1) Tare sheet (Form TL-104) is to be completed weekly and is to include company name, plant location, date trucks tared, I.D. of each truck used, maximum legal gross weight/maximum legal net weight, Department determined tare weight, actual tare and tare weight used, and signature of Weighperson taring trucks.

(2) Posted at location visible to Weighperson, or displayed on computer monitor during weighing operations.

(3) Worksheet is to be neat and legible, and must be kept on file for a period of 12 months. If the worksheet is computer generated, a paper copy must be printed not later than the end of each week.

(e) Weigh Ticket Information

(1) Weigh ticket is to accompany each load and is to include plant (company) name and

location, date, truck identification, load number, size and type of material, project, schedule, or purchase order number, lot number and/or aggregate certification when applicable.

(2) For truck scales, tickets must include 2 printed weights, one of which must be the NET WEIGHT. For hopper scales, tickets must include the printed NET WEIGHT.

(3) Must include LEGAL GROSS WEIGHT for trucks hauling material weighed on vehicle scales, or LEGAL NET WEIGHT for trucks hauling material weighed on hopper scales. These weights may be printed or in script form.

(4) Weighperson's signature (handwritten signature, handwritten initials, or computer printout of name or initials) certifies that the truck has been properly weighed and weights are accurate. Tickets are not to be presigned.

(5) Tickets are to be checked for proper weights and completeness of information.

(f) Daily Summary Sheet (Form TL-102A)

(1) Weighperson is to furnish a Daily Summary Sheet (Form TL-102A) to each order and/or contract. One TL-102A will be issued for each lot of production shipped to the state projects and purchase orders. Multiple lots may be reported on the TL-102A if directed by the District Materials Engineer. Summary sheet is to contain all pertinent information, and is to be delivered to the person taking up the weigh tickets at the project or work area by the end of the next working day, or according to agreement with the Department's representative receiving the material. (See additional details in Section 108.05.) (See Appendix 3, Page 37) for sample Form TL-102A.

Sec. 108.05 Reconciling Weigh Documents

The person receiving the Daily Summary Sheet (Form TL-102A) is to reconcile it against the weigh tickets received at destination. If there are differences, they should be corrected or explained. The Producer or Contractor is to be notified of any differences between the quantities shown on the Daily Summary and the weigh tickets. The Daily Summary Sheet is to be turned in at the completion of a project to the District Location & Design Section, who will check it against the final estimate and the weigh tickets. Upon completing the final estimate, the Daily Summary Sheet is to be retained in the project files, in accordance with published retention schedules. The Daily Summary Sheets will be sent to the State Materials Engineer after final checks by the Resident Engineer's office.

Sec. 108.06 Department Monitoring

The Department will monitor the certified Weighpersons and plants furnishing materials by weight on a continuing basis, with a minimum of one inspection per calendar quarter per plant, or more often if needed. Where significant discrepancies are found, follow-up inspections and reports should be made within 30 days of the original inspection. Where found, discrepancies

are to be corrected immediately by the Weighperson, before allowing hauling to resume. The "Weighing Inspection Report" (Appendix No. I, Section 109.01, A) shall be retained in the District for documentation. In addition, the Weigh Monitor shall instruct the Producer to notify him/her when a less experienced temporary Weighperson is going to be used. This will give the Monitor an opportunity to visit the plant and review weighing and documentation procedures with the temporary Weighperson prior to weighing operations. The District Materials Engineer, through the District Weigh Monitor, will be responsible for conducting the weigh inspections. Following are listed items that will be reviewed during the Weigh Monitor's visits:

(1) Check scales, printer system, and weighing operations.

(2) Check Weighpersons for knowledge of applicable specifications.

(3) Check delivery tickets for proper weights and information, including tare weights and lot numbers.

(4) Spot check trucks and compare actual tare weight with tare weight shown on posted tare sheet.

(5) Check hauling equipment for compliance with specifications. Monitor will randomly select loaded trucks to be reweighed to verify weights shown on delivery ticket. Weighperson is to cooperate fully in reweighing any truck the Monitor selects.

(6) Check to see if gross weight limitations are being adhered to.

(7) Check on posted certifications, tare weights, and bonds.

(8) Check scale seals.

(9) Check Summary Sheets (Form TL-102A) for complete, concise documentation.

(10) Keep a diary or file on each Supplier, to include dates checked, copy of bond, corrections required, copy of certification, and instructions given, etc.

SECTION 109 LEGAL LOAD DETERMINATION

Sec. 109.01 Administration

Sec. 109 of the Road and Bridge Specifications provide for the uniform administration of legal load limits on Department contracts. To facilitate this administration, the Specifications require the following:

(a) Trucks hauling material for purchase by the Department on a tonnage basis shall display legal gross and legal net weights.
(b) Weigh tickets accompanying the load shall include the legal gross weight for trucks hauling material weighed on vehicle scales, and the legal net weight for trucks hauling material weighed

on hopper scales. In addition, weigh tickets shall show the date, truck number, load number, lot number, plant name, size and type of material, and project, schedule, or purchase order number. See also Section 108.04(e).

(c) Payment shall be denied for material delivered in excess of the legal load limit established for each truck.

Sec. 109.02 Responsibilities

The District Materials Engineers, through the Weigh Monitors, are responsible for determining/verifying the legal load limits for the various trucks being used to haul state materials. This will involve scheduling with Contractors/Producers when the Weigh Monitors can visit the plant, measure axle spacing (rounded to the next higher foot), determine the tare for the trucks, and issue the legal weights on Form TL-101A, Legal Load Determination, as outlined in Sec. 800. The legal load determination will expire 4 years after the date of the initial Legal Load determination was established. Where a consistent tare is reflected in the scalehouse documentation, only a visual inspection will be required on the truck and a new TL-101A issued. However, when no consistent record can be documented, or there is a permanent alteration made to the truck, change of ownership, or there is a continuous discrepancy in the weekly tare weight of ±200 pounds or greater, a complete physical legal load determination will be performed.

The Weighperson, as outlined in Section 108.04(c), shall determine the tare weight of trucks. Following are guidelines for use by District Materials personnel (District Weigh Monitors) in the determination of legal load limits:

(a) Schedule legal load determinations through Producer/Contractor Suppliers who own the scales over which Department material is to be weighed. Request that a representative of the Supplier be present during the measurements to address concerns that may arise on the part of operators.

(b) The specification requires the legal load limits to be "permanently stenciled" on each side of the truck. Stenciling or better will be accepted; that is, professional hand lettering which is as legible as or more legible than stenciling. The weight limits are to be placed on the side of the bed or trailer unless otherwise approved. The numbers shall be a minimum of 2 inches in height. If the positioning of the scale house preclude the truck I.D. number from being visible to the weighperson from the scale house, it may be necessary to have the I.D. number placed in additional locations on the truck or some other method to identify the truck from the scale house.

(c) A dated list of trucks checked by each District is to be developed on a computer and published by the District Materials Section to aid in tracking and updating the pertinent information. The headings or format for the report are to be as follows (reading from left to right): report number, name of truck owner, truck/trailer ID number(s), number of axles, date checked, vehicle modifications if any, maximum legal gross weight, and maximum legal net weight.

(d) The legal load limits for each tractor/trailer combination are to be determined. The tractor ID number will have to be shown on the trailer along with the legal load limits for the tractor/trailer combination.

(e) The specification or special provision provides for the denial of payment for material delivered in excess of the legal load limit established for each truck. Residency personnel are to be responsible for comparing the actual with the legal weight and making the appropriate adjustment prior to payment of the estimate/invoice, etc.

Further, it is Department policy to not pay for material delivered on trucks for which legal load limits have not been determined by the Department, unless the use of such vehicles has been specifically directed by the Engineer.

(f) Producers/Contractors should be asked to give the District Materials Section at least 48 hours prior notice for requests that the Department schedule subsequent legal load determinations after the initial round of vehicle checks. Following the initial round of vehicle checks by the Department and at the option of the Producer/Contractor, the Bonded Weighperson may make legal load determinations. If this option is necessary, contact the Department's Bonded Weigh representative for approval before issuing a temporary truck certification, if no contact can be made, a temporary certification cannot be issued to haul any material to a state contract. With the approval from the Department, up to a 10 day certification can be issued until a Bonded Weigh monitor can verify the vehicle (refer to section 108.04(c)(3). Weight limits thus determined are to be verified or adjusted by the Department's representative as soon as practicable and the information published, as outlined in Section 109.02(c).

(g) State Owned Trucks. Two axle and three axle tandem dump trucks should be supplied to the districts with no load limit indicated at the time of delivery. After the District or Residency Shops make whatever modifications or additions needed for the trucks to conform to the needs of that section or residency (adding tool boxes, snow plow hitches, etc.), the District Materials Bonded Weigh Monitor should be notified of the need to certify these trucks if they are to be used in the hauling of materials that are purchased on a tonnage basis. The Bonded Weigh Monitor will perform a modified legal load determination on the trucks and notify the District or Residency Shop personnel of the load limits for the truck. The weighing of State trucks should be done at the nearest or most convenient scale facility out of which the truck may be hauling. The District or Residency Shop personnel will affix the proper load limits as indicated to the truck in accordance with instructions from the Equipment Engineer. State trucks shall carry the Equipment Identification Number (i.e. R12345) as a means of recognition and differentiation. The use of "1" on weigh tickets to designate state trucks will eliminate conflict and confusion with numbers assigned to private hauling vehicles.

For all two axle state trucks except 4 x 4's, 31,000lbs. shall be the maximum legal gross weight. For 4x4, 2-axle dump, Class894, the maximum legal load is 33,500lbs. For the 3-axel trucks with an axel spacing of less than 19 feet, 49,500lbs. shall be the maximum legal gross weight while trucks having axle spacing of 19 feet or more shall be limited to a maximum of

50,000lbs.. The legal load determination shall be performed to determine the legal net weight for the vehicle. The maximum legal tare weight is the difference between the above listed gross weights and the maximum legal tare weight.

(h) Preprinted forms, Forms TL-101A, will be used to record legal load determinations, as outlined in Sec. 800. A copy of the Legal Load Determination (TL-101A) report is to be kept with the truck at all times. It will be the truckers responsibility to furnish a copy of the report to all scale facilities at which the truck and its load are weighed.

(i) The Bonded Weighperson is to follow the procedure outlined in Section 108.04(c), for instructions on tare weights to be used to determine pay quantities.

(j) To reemphasize, it is very important to make sure that the fuel tanks are full and the operator is seated in the vehicle at the time the tare of the truck is determined. The operator should be requested to remove the tank cap such that the fuel level can be viewed. If the tank cannot visually be determined to be full, the operator should be asked to prove the level by an acceptable means, such as by stick reading.

(k) The truck identification number shall consist of a one-digit district number (D) and a truck number varying from one to four digits (X) as illustrated below:

DX	-	i.e. 91, 92, 93
DXX	-	i.e. 901, 921, 943
DXXX	-	i.e. 9002, 9123, 9965
DXXXX	-	i.e. 90007, 91074

Weighing Inspection Report

Date of Inspection_____

Producer_____

Location_____

Type Material Produced_____

			Yes	*No	N/A
I.	**Surety Bond:**				
	A.	Issued in Compliance with Specifications			
	B.	Properly Posted			
	C.	Is Date Current			
II.	**WeighPerson:**				
	Name_____ (Scale Operator)				
	A.	This Person Certified			
	B.	Certification Current			
	C.	Copy of Certification			
III.	**Weigh Tickets:**				
	A.	Furnished for Each Load			
	B.	Contain Job Identifier			
	C.	Denote Size and/or Type of Material			
	D.	Contain Net Weight			
	E.	Contain Tare and/or Gross Weight			
	F.	Certification Signed			
	G.	Contain Signature			

** Computer Printout of Name or Initials, Handwritten Signature, or Handwritten Initials are Acceptable.

IV. Plant Records:

A. Tare Worksheets (Form TL - 101):

		Yes	*No	N/A
1.	Tare Performed at Proper Frequency			
2.	Tare List Properly Posted			
3.	Date of Posted Tare List Current			
4.	Tare Weight Properly Computed			
5.	Tare On Ticket Agrees with posted Tare List (_____Tickets Checked)			
6.	Actual Tare of Trucks Agrees with posted Tare (_____Trucks Checked)			
7.	Tare Worksheets Properly Filed			

B. Weighperson's Daily Summary Sheet (Form TL-102A):

1.	Contains All Pertinent Information			
2.	Is Delivered in Accordance with Specifications			
3.	Is Noted As Q.A. Tested			

C. Running Totals:

1.	Are Running Totals Kept			
2.	Is Method Timely and Accurate			
3.	Does System Provide for Lot and Sample Identification			

V. Hauling Equipment:

A.	Tared			
B.	Legibly Identified			
C.	Truck Body Clean			

VI. Scales:

		Yes	*No	N/A
A.	Currently Sealed			
B.	Automatic Printer System Operative			
C.	Platform Clean			
D.	Printer Indicates “0” Under No-Load Condition			
E.	Temporary Scale Check Within Tolerance			

VII. Remarks:

_____

_____

_____

_____

*"No" Answers Must Be Explained To Include Action(s) Taken.

Signed:_____
(Department Weigh Technician/Monitor)

Signed:_____
(Certified Weighperson)

Appendix 3

Example Forms

Tare Work Sheet

Weighperson's Evaluation Form

Weighperson Certificate of Qualification

TL – 102A – Weighperson's Daily Summary Sheet

TL-103 – Weighperson's Surety Bond

TL-104 Weekly Tare Sheet

Appendix 3

Example Forms

ROCK OF GIBRALTAR QUARRIES, INC. **TICKET NO. 09754385**
Pamplin City Quarry
P.O. Box 91101
Pamplin City, Virginia 12345-6789
Phone: (804) 679-3361

SOLD TO: RAYSHAWN CONTRACTOR CO. **FRI ORDER:** 2108
SHIP TO: RAYSHAWN CONTRACTOR CO. **PURCHASE ORDER NO.:**

PROJECT: 0460 06F 10 C501 C502 **CONTRACT:**

PRODUCT: NO. 21B PUGMILL (251) **RELEASE:**

GROSS: 6050 LBS. 28138 KG. **LOT NO.:** 24
TARE: 26740 LBS. 12129 KG. **TOTAL LOADS TODAY:** 21
DATE: 01/25/02
NET. WGT: 17.63 TONS 15.99 MG. **SHIPPED TODAY:** 139.98
TIME: 3:05 PM

QUANTITY ORDERED:
BALANCE ON ORDER: **SCALE:** NO. 1

CERTIFIED WEIGHER: **JASHUA SEAY**

Driver's Signature:	Customer Signature:
	Martin Jameson

CARRIER: FRANKLIN PEARSON **TRUCK NO: 3067**

COMMENTS: Go east on right 460 and make left turn at Hayes Road. The project is approximately 2.5 miles north of this intersection.

ALL MATERIAL TESTED IN ACCORDANCE WITH VDOT SPECIFICATIONS.
LGW: 67500 **HAUL RATE: $2.25**

COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION

1401 EAST BROAD STREET
RICHMOND, VA 23219-2000

PHILIP A. SHUCET
COMMISSIONER

ANDREW J. MERGENMEIER, P.E.
STATE MATERIALS ENGINEER

July 1, 2003

Virginia Weights and Measures Association
G. Weston Diggs, Secretary/Treasurer
P. O. Box 1163, Room 402
Richmond, VA 23218-1163
804/786-2476, Fax: 804/786-1571
gdiggs@vdacs.state.va.us <mailto:gdiggs@vdacs.state.va.us>

Dear Mr. Weston Diggs,

The following is a list of producers currently supplying materials to VDOT, in Staunton District.

Aggregate Quarries	Type	Scale Locations
C.W. Barger	P	Lexington
Brett Aggregate	P	Stuarts Draft
Staunton Lime	P	Staunton
Transit Mixed Concrete	P	Staunton
Vulcan Materials	P	Lowmoor
Frazier (North) (Out B)	P	Harrisonburg
Frazier (Harrisonburg (Lg.)	P	Harrisonburg
Frazier (Thorndale)	P	Forestville
Global Stone Winchester (Freys) (#1)	P	Clearbrook

Asphalt Plants

	Type	Scale Locations
Adams Const.	P	Lowmoor
Adams Const.	H	Lexington
B & S Contr. (Augusta)	H & P	Staunton
B & S Contr. (Staunton)	H & P	Staunton
Moffett Paving	H & P	Staunton
Shenandoah Asphalt	P	Vesuvius

Types of Scales P = Platform
H = Hopper

Sincerely,

David C. Morris
District Materials Engineer

Telephone: 804/786-2476

VIRGINIA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES
OFFICE OF PRODUCT AND INDUSTRY STANDARDS
P.O. BOX 1163, ROOM 402
RICHMOND, VIRGINIA 23218

VDOT

VEHICLE SCALE INSPECTION REPORT

EST. #

Name: Associated Asphalt — Test No.: SP1

Address: P.O. Box 12676 Roanoke 24027 — Manager: Tim Shelton

Location/Directions: Roanoke Ave. off Bridge St. — City/County: Roanoke

Phone No.: 345-8865

SCALE		INDICATORS				INSTALLATION CONDITION					
Make of Scale	Weigh Tronix	Dial		Balance Ind.			Y	N		Y	N
Serial Number	000700106	T R Beam		Display		Pit Clean		X	Ind's Secure	—	
Scale Capacity	120000	Computer		Digital Ind.	X	Pit Dry		X	Poise Seating	—	
Section Capacity/CLC	25 Ton	Printer	X	Other		Sump Pump		X	Notches Clean	—	
Min. Graduation	20 lb	Dial Capacity		Seal ID (As Found)		Deck Free	X		Bal. Ball Rotable	—	
Platform Size	60X10					Deck Clean	X		Printer Legible	X	
Commodities Weighed	Asphalt					Deck Solid	X		Approach Level	X	

TEST RESULTS

Bal. Found 0 — SR-Zero Load ~~Dig. Adj.~~ Lbs. — SR-Full Load ——— Lbs. — Bal. Shift During Test 0 Lbs.

Load Position	Test Wts.	Error	Load Position	Test Wts.	Error		Load Position	Test Wts.	Error
See 1	9000	0	See 2	24000	0	Tare Beam			
	17000	0				Tare Beam			
	24000	0	3	↓	0				
						Unit Wts.			
			4	↓	0	Unit Wts.			

SUBSTITUTION OR STRAIN-LOAD TEST

Load Position	Indicated Tare Weight	Test Weights	Indicated Gross Weight	Error
See 1	30960	24000	54960	0
2	30960	↓	54940	-20
3	30960		54940	-20
4	30960		54960	0

ACTION TAKEN

(X) CORRECT — Acceptable for Commercial Use

( ) REJECTED FOR REPAIRS — Make Necessary Repair or Replacement by _____ or Scale Will be Removed From Commercial Use.

( ) CONDEMNED — Restricted From Commercial Use Until Repaired

( ) CONDEMNED — Restricted From Commercial Use Until Approved by Virginia Weights and Measures

ENTERED

Receipt of Report Acknowledged Tim Shelton

Inspector JB Booth — Date 6-25-01

A SCALE MUST BE MAINTAINED IN BALANCE AT ALL TIME (VA WEIGHTS & MEASURES LAW)
A SCALE MUST NOT BE USED FOR WEIGHING LOADS GREATER THAN THE NOMINAL CAPACITY OF THE SCALE
NO - SPLIT - LOAD WEIGHING ALLOWED (VA WEIGHTS & MEASURES LAW)

Example

WEIGHPERSON'S EVALUATION FORM

In evaluating the knowledge of proposed weighpersons, the following questions are to be used as a standard in judging applicants who are interviewed. The answers and further discussion of these topics can be found in the Training Manual.

1. What are the responsibilities of a bonded weighperson?

2. What weighing checks of scales must be made prior to weighing and shipping material to state projects?

    2a. What agency is responsible for certifying the producer's scales and how often is it done?

    2b. How often should the private scales companies test the producer's scales?

    2c. What procedures would be used in the event of an obvious readout malfunction of the plant scales?

3. What information must be posted on both sides of truck bed and visible to the weighperson on trucks being used for shipment to state projects?

4. What conditions must all trucks meet before being tared for shipping material to state projects?

5. How often should trucks hauling to state projects be tared?

    5a. Under what conditions would trucks hauling to state projects not be tared on a weekly basis?

6. Other than the tare weights, what additional information must be posted on the weekly tare sheet?

7. Explain how the Daily Summary Sheet (TL-102A) is used to document the shipment of material to state projects?

8. When the maximum legal gross or legal net weight for a truck is entered in a computerized ticket printing system, from where is this weight taken?

9. If the automatic printer becomes inoperative, how long and under what condition can the weighing operation be continued?

10. What information must be present on the shipping tickets?

11. In the event that you had to make legal load determination on a truck for temporary use, what procedures would you use?

    11a. How long is a temporary legal load determination good for, and how many times can a truck be temporarily certified?

    11b. Who is responsible for making the permanent legal load determination?

    11c. When would a truck be required to be recertified?

12. When shipping to state projects, what payment is made on material received in excess of the legal load limit established for the truck?

*Comment:_____
_____
_____
_____

Signature: _____

Title: _____

Date: _____

Applicant: I understand that specific knowledge of each of the above tasks are a condition of certification. In addition, I understand these tasks will be performed in the weighing and shipping of materials to state construction projects and/or state maintenance projects.

Date: _____ Signature: _____

I certify that the applicant _____ has been examined on the above subject matter and in my opinion the candidate does _____ / does not* _____ possess the necessary knowledge to function as a qualified weighperson.

Commonwealth of Virginia
Certificate of Qualification

for
Weighperson

This is to certify that _____, *Employed by* _____,

is qualified to serve as Weighperson when furnishing materials to be used in work for the

Virginia Department of Transportation

Awarded this _____ *day of* _____, _____.

_____
State Materials Engineer

_____
District Materials Engineer

TL-102A (Rev. 07/2003)

VIRGINIA DEPARTMENT OF TRANSPORTATION
WEIGHPERSON'S DAILY SUMMARY

This is to certify that: _____ _____

Shipped the following materials on the below referenced date.

Date: _____

Project: _____

Route: _____

County: _____

Type Material: _____

Lot Numbers: _____

No. Of Loads: _____

Total English Tons: _____

Total Metric Tons: _____

Company Representative: _____

DEPARTMENT USE ONLY

Department's Verification:

Date: _____ English Tons (Metric Tons) Received: _____

No. Loads Received: _____ English Tons (Metric Tons) Deducted: _____

Total English Tons (Metric Tons):_____

Reason for Differences: _____
_____
_____

_____ _____
Department Representative's Signature **Title**

TL-103 (Rev. 07/2003) **Bond No. _____**

WEIGHPERSONS SURETY BOND
FOR
CONTRACTORS AND PROCEDURES OF MATERIAL FURNISHED BY THE ENGLISH TON (METRIC TON) KNOW ALL MEN BY THESE PRESENTS:

That _____of the City/ County of, _____ State of _____ doing business under the firm name of _____An individual, partnership, or corporation _____ as PRINCIPAL and the _____ authorized to do business in the Commonwealth of Virginia, as SURETY, are held and firmly bound, effective the _____ Day of _____, unto the Commonwealth of Virginia, as obligee, in the full and just sum of Ten Thousand Dollars ($10,000) for the payment whereof well and truly to be made to the Commonwealth of Virginia, we bind ourselves, our successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the here in before mentioned principal desires to conduct the business of furnishing materials by the English ton (Metric ton) for incorporation in Virginia Department of Transportation road and bridge construction and maintenance work.

The condition of this obligation is such that, whereas, the above bound principle is or is about to conduct business as outlined above for which a surely bond is required.

NOW, THEREFORE, if the above bound principal will faithfully observe and perform the duties required by Section 109.01(a), Measurement of Quantities, of the Virginia Department of Transportation Road and Bridge Specifications as amended, and indemnify said obligee, then the above obligations shall be void, otherwise to be and remain in full force and effect.

The continuing nature of this bond is such that it is required to be renewed on its anniversary date except the principal or the surety may terminate their obligations under this bond by giving sixty days notice, in writing, by registered mail, to the obligee.

IN WITNESS WHEREOF the said principal has here under set his or its hand and affixed here unto by its daily authorized official or agent and executed this instrument the _____ day of _____, _____.

Principal Corporate Seal

_____
Principal

BY **_____**
President or Vice President

Surely Corporate Seal

_____
Surety

BY **_____**
Attorney-in-Fact

Countersigned by

_____
Virginia Resident Agent

TL-104 (Rev. 02/2004)

WEEKLY TARE SHEET

COMPANY NAME _____ **LOCATION _____**

WEEK BEGINNING DATE _____ **WEEK ENDING DATE _____**

TRUCK COMPANY NAME & DATE TARED	TRUCK ID	ACTUAL TARE	LEGAL TARE	TARE USED	MAX. LEGAL GROSS WT.

WEEKLY INSPECTION OF TRUCKS FOR WEIGHPERSONS

DRIVER MUST BE IN TRUCK WHILE TARING
OVER LOAD PERMIT VALID
FUEL TANK MUST BE FULL
LEGAL GROSS AND NET WT. MUST BE ON SIDES OF TRUCK

WEIGHPERSON SIGNATURE _____ **DATE _____**

Appendix 4

Example of Legal Load Determination

TL – 101A Legal Load Determination Work Sheet

Maximum Weight Determination Chart

Maximum Weight Limitations Chart

Truck Identification Check List

Appendix 4

Form TL - 101 A (Rev. 07/2003)

VIRGINIA DEPARTMENT OF TRANSPORTATION
LEGAL LOAD DETERMINATION

Date: _____ Location: _____

Truck I.D.#: _____ Owned by _____

Phone Number: _____

Trailer I.D. _____Number of Axles _____

Extreme axle spacing, (ft)_____ (*The length of the axle spacing is rounded up to next higher foot)*

Overload Permit Percentage _____

Legal Gross Weight from MLGW Table _____lbs. _____ tons

Overload % (0._____) x Legal Gross Weight + _____ lbs. _____tons

Maximum Legal Gross Weight = _____lbs. _____ tons

Tare Weight = _____lbs. _____ tons

Maximum Legal Net Weight = _____ lbs. _____ tons

Tare weight is to be determined with fuel tank full and operator seated in the vehicle. The legal weights shown are based on the tare weight on this date and the assumption that an overload permit for the allowable gross and net weights has been obtained. These subsequent modifications to the vehicle's weight will require a recalculation of allowable weights. Permitted overload adjustments in the maximum legal gross weight are not applicable to transport over Interstate Highway System. All overload permit decals must be posted on both sides of the vehicle and be current to be utilized in setting load limits. Allowing overload permits to expire will invalidate maximum load limits found herein.

Attention: <u>Truck Owner/Driver: This form is to remain in the truck when taring & hauling to VDOT projects or purchase orders.</u>

Is there a snowplow hitch installed? _____Yes _____No

Remarks:_____
_____
_____

Expiration Date: _____

_____ _____
Driver's Signature VDOT Representatives Signature

Copies to:
Truck Driver
Certified Weighperson
District Materials Engineer Report No. _____

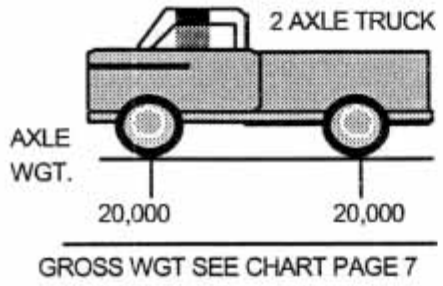
Weight Allowed Based on Axle Spacing

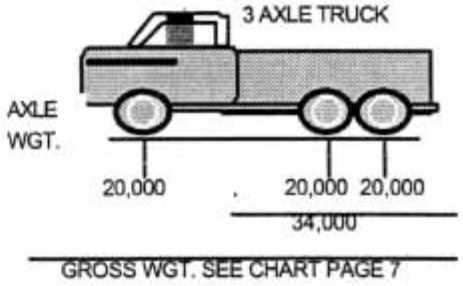
The maximum gross weight is determined by the total number of axles and by measuring the distance between the first axle (steering) and extreme rear axle. The maximum weight allowance for axle groups is determined by measuring the distance between the center of the first axle and the center of the last axle and the number of axles within a specific axle group. Look up the distance between axles and the appropriate number of axles or axle groups on the chart below to obtain the maximum gross or axle group weight allowance.

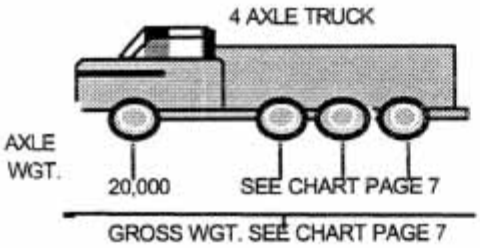
Distance in Feet Between the Extremes of Any Group of 2 or More Axles	**Maximum Weight in Pounds Carried on any Group of Axles**					
	2 Axles	**3 Axles**	**4 Axles**	**5 Axles**	**6 Axles**	**7 Axles**
4	34,000					
5	34,000					
6	34,000					
7	34,000					
8	34,000	34,000				
9	39,000	42,500				
10	40,000	43,500				
11		44,000				
12		45,000	50,000			
13		46,500	50,500			
14		46,500	51,500			
15		47,000	52,000			
16		48,000	52,500	58,000		
17		48,500	53,500	58,500		
18		49,500	54,000	59,000		
19		50,000	54,500	60,000		
20		51,000	55,500	60,500	66,000	
21		51,500	56,000	61,000	66,500	
22		52,500	56,500	61,500	67,000	
23		53,000	57,500	62,500	68,000	
24		54,000	58,000	63,000	68,500	74,000
25		54,500	58,500	63,500	69,000	74,500
26		55,500	59,500	64,000	69,500	75,000
27		56,000	60,000	65,000	70,000	75,500
28		57,000	60,500	65,500	71,000	76,500
29		57,500	61,500	66,000	71,500	77,000
30		58,500	62,000	66,500	72,000	77,500
31		59,000	62,500	67,500	72,500	78,000
32		60,000	63,500	68,000	73,000	78,500
33			64,000	68,500	74,000	79,500
34			64,500	69,000	74,500	80,000
35			65,500	70,000	75,000	
36			66,000	70,500	75,500	
37			66,500	71,000	76,000	
38			67,500	72,000	77,000	
39			68,000	72,500	77,500	
40			68,500	73,000	78,000	
41			69,500	73,500	78,500	
42			70,000	74,000	79,000	
43			70,500	75,000	80,000	
44			71,500	75,500		
45			72,000	76,000		
46			72,500	76,500		
47			73,500	77,500		
48			74,000	78,000		
49			74,500	78,500		
50			75,500	79,000		
51			76,000	80,000		

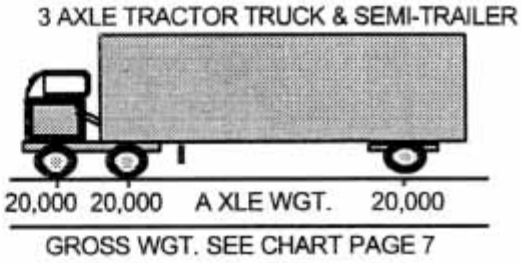
Note: Any fraction of a foot is rounded to the next highest foot.

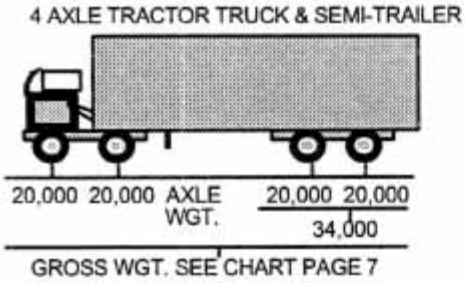
Maximum Weight Limitations

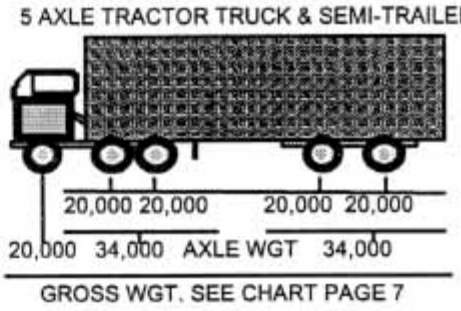


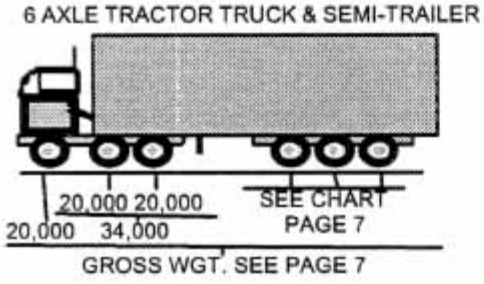


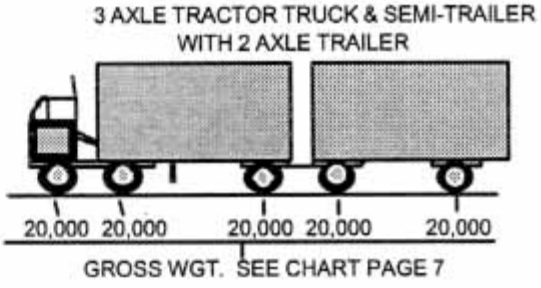












Maximum gross weight is determined by the number of axles and the distance between first and last axles.

TRUCK IDENTIFICATION CHECK LIST

Post truck identification numbers in sufficient areas that are visible to the Weighperson from the scale house.

Post state identification numbers, GROSS weight and NET weight on BOTH sides of the vehicle using a minimum of two inch legible stenciled letterings

Note: If for any reason weights are changed due to different combinations of vehicles/trailers a new certification (TL-101A) shall be established before shipping any material.

LEGAL LOAD determination forms (TL-101A) must be in the vehicle while hauling to verify the vehicles certification to haul (this responsibility is the owner of the vehicle)

CERTIFICATION MARKINGS MUST BE DISPLAYED ON THE VEHICLE PRIOR TO SHIPPING ANY MATERIAL TO THE COMMONWEALTH OF VIRGINIA

Appendix 5

Definitions of Terms

Appendix 5

Definitions of Terms

The terms defined in this section pertain to the technical meaning when used in the Scales Code, State Specifications, and Reports.

Absolute Value – The absolute value of a number is the magnitude of that number without considering the positive or negative sign.

Automatic Bulk Weighing System – A weighing system adapted to the automatic weighing of bulk commodities in successive drafts of predetermined amounts, automatically recording the no-load and loaded weight values and accumulating the net weight of each draft.

Automatic Hopper Scale – One adapted to the automatic weighing of bulk commodity in successive drafts of predetermined amounts.

Automatic – Indicated Scale – One of which the weights of applied loads of various magnitudes are automatically indicated throughout all or a portion of the weighing range of the scale. (A scale that automatically weighs out commodity in predetermined drafts, such as an automatic hopper scale, a packaging scale, and the like, is not an "automatic- indicating scale").

Axle- Load Scale – A scale permanently installed in a fixed location, having a load receiving element specially adapted to determine the combined load on all wheels (1) on a single axle or (2) on a tandem axle of a highway vehicle.

Balance Indicator – A combination of elements, one or both of which will oscillate with respect to the other, for indicating the balance condition of a non-automatic indicating scale. The combination may consist of two indicating edges, lines, or points, or a single edge, line, or point and a graduated scale.

Balance Mechanism – A mechanism (including a balance ball) that is designed for adjusting a scale to an accurate zero- load balance condition.

Beam Scale – One on which the weights of loads of various magnitudes are indicated solely by means of one or more weigh beam bars either alone on in combination with counterpoise weights.

Bid - A proposal, formally submitted, covering the fee per designated unit of an item of work contemplated.

Concentrated Load Capacity (CLC) – A capacity rating of a vehicle, axle-load or livestock scale, specified by the manufacturer, defining the maximum load concentration for which the weighbridge is designed. This capacity rating is for both test and use.

Condemnation Tag – A tag that is applied to a weight or measure that fails to pass an official inspection, the application of which the tag requires the immediate removal of the weight or measure form service.

Construction – Material Hopper Scale – A scale adapted to weighing construction materials such as sand, gravel, cement, and hot oil.

Contract – Written agreement executed between the Department and Contractor, setting forth obligations of the parties thereunder, including, but not limited to the performance of the work, the furnishing of labor and materials and the basis of payment.

Counter Scale – Due to the size, weight and arrangement of parts of the apparatus it is used on a counter or bench top, which is non-formally called a "bench scale".

Counterbalance Weight – One intended for application near the end of a weighbeam for zero-load balancing purposes.

Counterpoise Weight – A slotted or "hanger" weight intended for application near the tip of the weighbeam of a scale having a multiple greater than 1.

Decreasing – Load Test – A test for automatic-indicating scales only, wherein the performance of the scale is tested as the load is reduced.

Discrimination (of an automatic – indicating scale) – The value of the test load on the load-receiving element of the scale that will produce a specified minimum change of the indicated or recorded value on the scale.

Equal – Arm Scale – A scale having only a single lever with equal arms (that is, with a multiple of 1), equipped with two similar or dissimilar load – receiving elements (pan, plate, platter, scoop, or similar), one intended to receive material being weighed and the other intended to receive weights. There may or may not be a weighbeam.

Fractional Bar – A weighbeam bar of relatively small capacity for obtaining indications intermediate between notches or graduations on a main or a tare bar.

Group of Axles – Means any two or more consecutive axles located under a vehicle or combination.

Gross Weight – It is the total weight of a commodity, including the weight of the vehicle, driver, and a fuel.

Hopper Scale – A scale designed for weighing bulk commodities whose load – receiving element is a tank, box, or hopper mounted on a weighing element.

Increasing – Load Test – A basic performance test for a scale in which observations are made as increments of test load are successively added to the load – receiving element of the scale.

Load Cell – A device, whether electric, hydraulic, or pneumatic, that procedures a signal proportional to the load applied.

Load – Receiving Element – The element of a scale that is designed to receive the load to be weighed; for example, platform, deck, rail, hopper, platter, plate and scoop.

Main Bar – A principal weighbeam bar, usually of relatively large capacity as compared with other bars of the same weighbeam. Example: on an automatic – indicating scale equipped with a weighbeam, the main weighbeam bar is frequently called the "capacity bar".

Main – Weighbeam Elements – The combination of a main bar and its fractional bar, or a main bar alone if no fractional bar is associated with it.

Materials – Any substances specified for use in the construction of a project and its appurtenances.

Minimum Tolerances – Minimum tolerances are the smallest tolerance values that can be applied to a scale. It is determined on a basis of the value of the minimum graduated interval or the nominal or reading face capacity of the scale.

Net Weight – It is the total vehicle weight minus the tare weight, with the driver and fully fueled.

NIST – National Institute of Standards and Technology.

National Institute of Standards and Technology Handbook 44 – Spcifications, tolerances, and other technical requirements for weighing and measuring devices.

Nominal Capacity – The nominal capacity of a scale is (a) the largest weight indication that can be obtained by the use of all of the reading or recording elements in the combination, including the amount represented by the removable weights furnished or ordinarily furnished with the scale, but excluding the amount represented by any extra removable weights not ordinarily furnished with the scale, and excluding also the capacity of any auxiliary weighing attachment not contemplated by the original design of the scale, and excluding any fractional bar with a capacity less than 2.5 % of the sum of the capacities of the remaining reading elements or (b) the capacity marked on the scale by the manufacturer, whichever is less.

Nominal Capacity, Batching Scale – The nominal capacity of a batching scale is the capacity as marked on the scale by the scale manufacturer, or the sum of the products of the volume of each of the individual hoppers, in terms of cubic feet, times the weight per cubic foot of the heaviest material weighed in each hopper, whichever is less.

Nominal Capacity, Hopper Scale – The nominal capacity of a hopper scale is the capacity as marked on the scale by the scale manufacturer, or the product of the volume of the hopper in

bushels or cubic feet times the maximum weight per bushel or cubic foot, as the case may be, of the commodity normally weighed, whichever is less.

Noise – Iron – A side mounted, manually – adjustable pivot assembly for changing the multiple of a lever.

Over – and - Under Indicator – An automatic – indicating element incorporated in or attached to a scale and comprising an indicator and a graduated scale with a central or intermediate "zero" graduation and a limited range of weight graduations on either side of the zero graduation, for indicating weights greater than the predetermined values for which other elements of the scale may set. Note: A scale having an over - and – under indicator as classed as an automatic – indicating scale.

Payment Bond – The security furnished to guarantee to the Department the payment of all persons supplying labor and materials in the prosecution of the subcontracted work in accordance with the terms of the Contract.

Performance Bond – Bond of the Contractor in which a surety guarantees to the Department that the work will be performed in accordance with the contract documents.

Prequalification – This Procedure is used to assure the Department of Contractor's ability to perform the work; experience in similar work; sufficient equipment to accomplish the work; and that the Contractor's financial resources will permit the financing of the work.

Point – of – Sale. System – An assembly of elements including a weighing element, an indication element, and a recording element, (and may be equipped with a "scanner") used to complete a direct sales transaction.

Poise – A movable weight mounted upon or suspended from a weighbeam bar and used in combination with graduations, and frequently with notches, on the bar to indicate weight values. **Note:** A suspended poise is commonly called a "hanging poise".

Ratio Test – Determines the accuracy with which the actual multiple of a scale agrees with its designed multiple. This test is used for scales employing counterpoise weights and is made with standard test weights substituted in all cases for the weights commercially used in on the scale.

Reading Face – The element of an automatic – indicating scale on which weight values are automatically indicated.

Reading - Face Capacity – The largest weight that may be indicated on the reading face, exclusive of the application of any unit weights, weight ranges, or other elements.

Recording Scale – One on which the weights of applied loads may be permanently recorded electronically or other methods approved by the Department.

Scale Divisions, Number of (n) – Quotient of the capacity divided by the value of the scale division: $n = \frac{Cap}{d}$

Rejection Tag – A tag is applied to a weight or measure that fails to pass an official inspection, the application of which tag requires the removal of the weight and measure for service if the weight or measure is not adjusted to conform to requirements specified by the Weights and Measures Act of Virginia (§3.1-919et seq.) or any regulation adopted thereunder.

Scale Division, Value of (d) – The value of the scale division, expressed in units of mass, is the smallest subdivision of the scale for analog indication or the difference between two consecutively indicated or printed values for digital indication or printing.

Scale Section – A part of a vehicle, axle-load, livestock, or railway truck scale consisting of two main load supports, usually transverse to the direction in which the load is applied.

Section Test – A shift test in which the test load is applied over individual sections of the scale. This test is conducted to disclose the weighing performance of individual sections, since scale capacity test loads are not always available and loads weighed are not always distributed evenly over all main load supports.

Select Material – Material obtained from roadway cuts, borrow areas or commercial sources and designated or reserved for use as foundation for the subbase, subbase material, shoulder surfacing or other specific purposes.

Sensitivity (of a non-automatic-indicating scale) – The value of the test load on the load-receiving element of the scale that will produce a specified minimum change in the position of rest of the indicating element or elements of the scale.

Sensitivity Requirement (SR) – A performance requirement for a non-automatic-indicating scale; specifically, the minimum change in the position of the rest of the indicating element or elements of the scale in response to the increase or decrease, by a specified amount, of the test load on the load-receiving element of the scale.

Service of Weights and Measures; repair – Any registered service agency or certified service technician in the employ of the service agency may: **a** place into service, subject to an official inspection, a new or used weight or measure and **b.** following corrective repair, remove any rejection tag or condemnation tag and return the weight or measure to service, subject to an official inspection.

Service Technician Certification – The technician is certified by a (or employed by) registered service agency. Every technician shall obtain certification by the Commissioner before operating in Virginia and shall renew the certification annually. The application for the certification as a service technician or renewal shall be made in writing on a form supplied by the Commissioner.

Shift Test – A test intended to disclose the weighing performance of a scale under off-center loading.

Single Axle – Means an assembly of two or more wheels whose centers are in one transverse vertical plane or may be included between two parallel transverse vertical planes forty inches apart, extending across the full width of the vehicle.

Single Axle Weight – The total weight transmitted by all wheels whose centers may be included between two parallel transverse vertical planes 40 inches apart, extending across the full width of the vehicle. The Federal single axle weight limit on the Interstate is 20,000 pounds.

Span (structural) – The distance between adjoining sections of a scale.

Specifications – General term comprising all the directions, provisions and requirements contained herein, together with such as may be added or adopted as supplemental specifications or special provisions, all of which are necessary for the proper performance of the contract.

Tandem Axle – Means any two or more consecutive axles whose centers are more than forty inches but not more than ninety-six inches apart, and are individually attached to and / or articulated from a common attachment to the vehicle including a connecting mechanism designed to equalize the load between axles.

Tandem Axle Weight – The total weight transmitted to the road by two or more consecutive axles whose centers may be included between parallel vertical planes spaced more than 40 inches and not more than 96 inches apart, extending across the full width of the vehicle. The Federal tandem axle weight limit on the Interstate is 34,000 pounds.

Tare – The weight of the fully fueled vehicle and driver, which is deducted from the total weight to determine the weight of the contents or load.

Tare Mechanism – A mechanism (including a tare bar) designed for determining or balancing out the weight of packaging material, containers, vehicles, or other materials that are not intended to be included in net-weight determinations.

Tare-Weighbeam Elements – The combination of a tare bar and its fractional bar, or a tare bar alone if no fractional bar is associated with it.

Type – The term “type” shall be construed to mean a model or models of a particular measurement system, instrument, element, or a field standard that positively identifies the design. A specific type may vary in its measurement ranges, size, performance, and operating characteristics.

Unit Train – A unit train is defined as a number of contiguous cars carrying a single commodity from one consignor to one consignee. The number of cars is determined by agreement among the consignor, consignee, and the operating railroad.

Unit Weight – One contained within the housing of an automatic-indicating scale and mechanically applied to and removed from the mechanism. The application of a unit weight will increase the range of automatic indication, normally in increments equal to the reading-face capacity.

Variable Division-Value Scale – A scale so designed that the value of the verification scale division (e), in the same unit of weight, increases at certain load values within the weighing range of the scale.

Vehicle Scale – A scale adapted to weighing highway, farm, or other large industrial vehicles (except railroad freight cars), loaded or unloaded.

Verification Scale Division, value of (e) – A value, expressed in units of weight and specified by the manufacturer of a device, by which the tolerance values and the accuracy class applicable to the device are determined. The verification scale division is applied to all scales, in particular to ungraduated devices since they have no graduations. The verification scale division, e, may be different from the displayed scale division, d, for certain other devices used for weight classifying or weighing in pre-determined amounts, and certain other Class I and II scales.

Weighbeam – An element comprising one or more bars, equipped with movable poises or means for applying counterpoise weights or both.

Weighment – A single complete weighing operation.

Weight Classifier – A digital scale that rounds weight values up to the next scale division. These scales usually have a verification scale division, e, which is smaller than the displayed scale division.

Weight Ranges – Electrical or electro-mechanical elements incorporated in an automatic-indicating scale through the application of which the range of automatic indication of the scale is increased, normally in increments equal to the reading-face capacity.

Wheel-load Weighers – Compact, self-contained, portable weighing elements specially adapted to determining the wheel loads or axle loads of vehicles on highways for the enforcement of highway weight laws only.

Work – Work shall mean the furnishing of all labor, materials, equipment and other incidentals necessary or convenient to the successful completion of the project and the carrying out of all the duties and obligations imposed by the Contract.

Zero-load Balance – A correct weight indication or representation of zero when there is no load on the load-receiving element. (See also "zero-load balance for an automatic-indicating scale", "zero-load balance for a non-automatic-indicating scale", "zero-load balance for a recording scale").

Zero-load Balance for an Automatic-Indicating Scale – A condition in which the indicator is at rest at, or oscillates through approximately equal arcs on either side of the zero graduation.

Zero-load Balance for a Non-automatic-indicating Scale – A condition in which (a) the weighbeam is at rest at, or oscillates through approximately equal arcs above and below, the center of a trig loop; (b) the weighbeam or lever system is at rest at, or oscillates through approximately equal arcs above and below a horizontal position or a position midway between limiting stops; or (c) the indicator of a balance indicator is at rest at, or oscillates through approximately equal arcs on either side of the zero graduation.

Zero-load Balance for a Recording Scale – A condition in which the scale will record a representation of zero load.

Zero-Setting Mechanism – Means provided to attain a zero balance indication with no load on the load-receiving element. Three types of these mechanisms are:

[1]**Automatic Zero-Setting Mechanism** – Automatic means provided to maintain zero balance indication without the intervention of an operator.

[2]**Manual Zero-Setting Mechanism** – Non-automatic means provided to attain a zero balance indication by the direct operation of a control**.**

[3]**Semi-Automatic Zero-Setting Mechanism** – Automatic means provided to attain a direct zero balance indication requiring a single initiation by an operator.

Zone of Uncertainty – The zone between adjacent increments on a digital device in which the value of either of the adjacent increments may be displayed.